



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/696,397	10/28/2003	Jingdong Lin	38483-8013US	6388
25096	7590	06/27/2006	EXAMINER	
PERKINS COIE LLP			AGBOTTAH, AWUDZI Z	
PATENT-SEA				
P.O. BOX 1247			ART UNIT	PAPER NUMBER
SEATTLE, WA 98111-1247			2632	

DATE MAILED: 06/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/696,397

Applicant(s)

LIN ET AL.

Examiner

Awudzi Z. Agbottah

Art Unit

2632

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9 and 10 is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 and 5 are rejected under 35 U.S.C. 102(e) as being anticipated by
Chen (United States Patent Application Publication No. US 2005/0003766 A1).

2. Consider claim 1, Chen discloses a method of detecting bad frame indicator BFI (silent frame) via a GSM radio telephone (mobile station) (**Page 2, Paragraph 21, Lines 1-4**) comprising:

a) Chen discloses the reception of a GSM data burst by, for example, a cellular radiotelephone receiver (**Page 3, Paragraph 37, Lines 8-11**).

b) Chen discloses the use of estimated signal power and noise power ratio (SNR) to compute for each data burst (**Page 2, Paragraph 25, Lines 11-14**).

c) Chen discloses that if any estimated signal to noise ratio (ESNR) which is the same as SINR (read in accordance with Applicant's specification), is below a certain threshold, then it is given a BFI value of 1. The BFI value of 1 equates to a silent frame **(Page 1, Paragraph 7)**.

3. Consider claim 5, Chen discloses an apparatus for detecting a BFI (silent frame) at a GSM radio telephone (mobile station) **(Page 2, Paragraph 21)**.

a) Chen discloses a means for receiving a data burst intended for a mobile station. Chen describes a method in which the received signal is passed to a demodulator which converts the radio signal to a baseband digital signal. An equalizer processes the baseband signal, which consists a sequence of GSM data bursts which contain speech data **(Page 2, Paragraph 21)**.

b) Chen discloses the means for determining a signal-to-noise ratio of a data burst in **Fig.1**. Chen states that a radio signal is received by a radio telephone and passed to a demodulator. The demodulator in turn converts the radio signal to a baseband digital signal. An equalizer in turn processes the received baseband signal which is a sequence of GSM data bursts. Chen additionally states that the ESNR (SNIR) is computed for each burst and output to the BFI calculation **(Page 2, Paragraph 21)**. Later in the reference, Chen discloses the value of the ESNR (SINR) is

Art Unit: 2632

computed for each burst and output to the BFI calculation 20 (**Page 2, Paragraph 25, 12-13**).

c) Chen discloses a means of determining if the ESNR is below a certain threshold. Chen calculates ESNR (SINR) computing the ratio of estimated noise power for the received channel and estimated training sequence power. If the ESNR (SNR) is below a certain threshold it is given a BFI value of 1, this value indicates a silent frame (**Page 1, Paragraph 7-8**).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

Art Unit: 2632

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 2 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Copeland (**United States Patent No. 6067319**).

7. Consider claims 2 and 6 as applied to claims 1 and 5 above, Chen clearly discloses the claimed invention but fails to disclose passing the SNR through a low pass filter. Copeland discloses low pass filtering the SNR (**Column 11, Lines 39-56**). Chen already discloses comparing the ESNR (SNR) to a threshold value (**Page 1, Paragraph 7**). In light of Copeland it would be obvious to one skilled in the art to combine the teachings of Chen and Copeland for the purpose of increasing the signal to noise ratio (**Copeland: Column 11, Lines 57-59**).

Claims 3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen as applied to claim 2 and 6 above, and further in view of Kavcic et al. (**United States Patent No. 6,438,180 B1**).

8. Consider claim 3 as applied to claim 2 above, Chen and Copeland disclose the claimed invention but fail to specify the forgetting factor (β) of 0.95 of the low pass filter. Kavcic et al. discloses a low pass filter with a forgetting factor (β) of 0.95 (**Column 12, Lines 55-67**). In light of Kavcic et al., it would be obvious to one skilled in the art to combine the teachings of Chen, Copeland and Kavcic et al. to provide a high forgetting factor (β) of 0.95 for the purpose of providing stability to the smoothing filters in the silent frame detector.

9. Consider claim 7 as applied to claim 6 above, Chen and Copeland disclose the claimed invention but fail to specify the forgetting factor (β) of 0.95 of the low pass filter. Kavcic et al. disclose a low pass filter with a forgetting factor (β) of 0.95 (**Column 12, Lines 53-62**). In light of Kavcic et al., it would be obvious to one skilled in the art to combine the teachings of Chen, Copeland and Kavcic et al. to provide a high forgetting factor (β) of 0.95 for the purpose of providing stability to the smoothing filters in the silent frame detector.

Claims 4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen.

10. Consider **claims 4 and 8, as applied to claims 1 and 5 above**, *Chen* fails to disclose that *the predetermined threshold is less than 0.2*.

Please note that to the extent that *Chen* does not specify *exact ranges for the threshold*, these figures would have been a matter of routine experimentation to one of ordinary skill in the art at the time of the invention was made, in order to ensure *optimal identification of a silent frame*. See *In re Aller*, 105 USPQ 233 (CCPA 1955) (Where general conditions of the claim are disclosed in the prior art, it is not inventive to discover optimal or workable ranges by routine experimentation).

Allowable Subject Matter

11. Claims 9 and 10 are allowed.

12. The following is a statement of reasons for the indication of allowable subject matter:

Consider Claim 9, *Chen* discloses a method of detecting BFI (silent frame) (**Page 1, Paragraph 7-8**) at a radio telephone in GSM transmission (**Page 2, Paragraph 21, Lines 1-2**).

9b) Chen discloses receiving a data burst for said mobile station (**Page 2, Paragraph 21**).

However Chen And other cited prior art either alone or in combination fail to specifically disclose the equation cited in element b and c.

Therefore claims 9 and 10 are considered novel and non-obvious and, consequently, are allowed.

Conclusion

13. Any response to this Office Action should be **faxed to (571) 273-8300 or mailed to:**

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Hand-delivered responses should be brought to

Customer Service Window

Randolph Building

401 Dulany Street

Alexandria, VA 22314

14. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Awudzi Z. Agbottah whose telephone number is (571) 270-1114. The Examiner can normally be reached on Monday-Thursday from 6:30am to 5:00pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Rafael Perez-Gutierrez can be reached on (571) 272-7915. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 703-305-3028.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist/customer service whose telephone number is (571) 272-2600.


Awudzi Z. Agbottah

A.Z.A../aza

Application/Control Number: 10/696,397
Art Unit: 2632

Page 10

June 21, 2006


RAFAEL PEREZ-GUTIERREZ
PRIMARY EXAMINER
6/22/06